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AUTHORITY

AGO D/A ltr, 29 Apr 1980

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DEPARTMENT OF THE ARMY
HEADQUARTERS 538TH ENGINEER BATTALION (CONSTRUCTION)
APO San Francisco 96233

RILCA-AOP

30 April 1966

SUBJECT: Operational Report of Lessons Learned for Quarterly Period
Ending 30 April 1966

THRU: Commanding Officer
44th Engineer Group
APO US Forces 96233

Commanding Officer
9th Logistical Command (B)
ATTN: Staff Historian
APO US Forces 96233

Commanding General
USARYLS
APO US Forces 96331

CINCUSARPAC
G-3 Operations
ATTN: GPOP-MH
APO US Forces 96558

TO: OACSFOR
Department of the Army
Washington, D.C. 20310

Attached is the Operational Report of Lessons Learned for this battalion for the Quarterly Period Ending 30 April 1966.

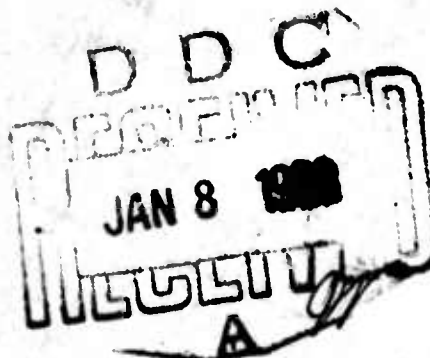
FOR THE COMMANDER:

1 Incl:
as

FOR OT RD
660040

Encl 2

Jimmy E. Powers
JIMMY E. POWERS
Captain, CE
Adjutant



HEADQUARTERS
538TH ENGINEER BATTALION (CONSTRUCTION)
APO San Francisco 96233

OPERATIONAL REPORT OF LESSONS LEARNED
FOR QUARTERLY PERIOD ENDING 30 APRIL 1966

Section I

1. Primary Mission:

a. The primary mission of the battalion is the first~~phase~~ construction of the extension to the Bangkok By-Pass Road from Kabin Buri to Korat (see Incl 1). The Extension Road project will be accomplished in two phases. Phase I requires construction of a road capable of supporting military traffic as soon as possible. This phase currently is scheduled for completion in November 1966. Phase II requires improvement of this road, to include paving, to a quality comparable to a first class US highway. Design of the road to phase II standards is underway by the US Navy Officer In Charge of Construction, S. E. Asia, and the work may be accomplished by civilian contractor thereby releasing the battalion for other military construction tasks.

b. The northern 57 kilometers of the road (K- 0 to K- 57) is a poorly graded two lane laterite surfaced road which requires maintenance effort only to meet minimum military road standards. Company B has been assigned the responsibility from K- 57 to K- 72. The section is characterized by increasingly dense vegetation, hilly terrain, and enormous sandstone outcroppings which require extensive blasting. Company C, located at kilometer 80, is responsible for military road construction from K- 72 to K-96. Major tasks in this sector include clearing and grubbing of heavy jungle growth and control of steep grades as the road winds through the mountains. Company D, located at kilometer 115, is responsible for construction from K- 96 to K- 125. Much of this sector is lowland and subject to rainy season flooding, this requiring large quantities of fill material to raise the elevation of the road. The final 15 kilometers from K- 125 to K- 140 is in fair condition and meets the minimum criteria for a military road. (See photograph at Incl 2 thru 5).

c. The military road project is 32% complete.

2. Secondary Mission:

a. The major secondary mission is construction of a POL Tank Farm in Korat. This project includes constructing 9 each 10,000 barrel bolted steel tanks with related manifolding and filters, truck fill platforms, tank-car loading and unloading facilities and 19,540 square meters of double bituminous surface treated hardstands on a 15 centimeter base of crushed rock. The project has a funded cost of \$540,000. The 697th Engr Co (Pipeline) (Const Spt) has been placed under the operational control of this battalion to assist in the accomplishment of the project. This project is complete except for minor items such as fencing, sodding and police. (See photographs at Incl 6 thru 8).

Section II

1. Personnel: 538 Engr. Bn

a. The battalion enlisted strength increased from 77% to 91% during the report period. Critical shortages are:

<u>MOS</u>	<u>TITLE</u>	<u>AUTH</u>	<u>ASSG</u>	<u>SHORT</u>
51A10	Const & Util worker	27	3	24
51C20	Structural Spec	3	0	3
51H40	Const Foreman	30	24	6
51K20	Plumber	19	8	11
52F20	Electrician	19	12	7
62D20	Surface Equip Spec	19	11	8
62E30	Const Mach Oper	18	5	13
76K30	Gen Supply Spec	4	1	3
81B20	Const Draftsman	6	2	4
82B20	Const Surveyor	4	2	2
91B20	Med Spec	6	3	3

b. The number of personnel who actually joined during the period did not meet the number forecast nor were those forecast sufficient to replace losses. Valid requisitions indicated unit would be at strength by the end of February, but personnel that actually reported did not bring the unit up to authorized strength.

c. It appears that a critical shortage of NCO's will exist when the majority of these personnel complete their tour of duty in Thailand in June and July. To date no information on NCO replacements during this period is available.

2. Organization:

a. The battalion deployed from CONUS with a shortage of twelve (12) wheeled tractors and scrapers. For a unit with a major road construction task, the shortage of this basic earth moving machinery is a serious deficiency. Requisitions have been submitted for these shortages.

b. MTOE's were initiated in November 1965 to provide for equipment and personnel deficiencies in a unit assigned a major road building mission in Thailand. Some relief is anticipated by the temporary readjustment of assets within the command; however, approval of MTOEs will provide a major improvement in the ability of this unit to accomplish its assigned mission.

c. The battalion's six TO&E water distributors proved completely inadequate to provide moisture for compaction for road construction. Seven water distributors have been improvised and an additional three civilian distributors have been rented.

d. The battalion operates an independent base camp and two advance camps in Thailand. Operation of these camps to include such activities as water supply, power distribution, camp maintenance, post exchange operations, clubs, and special service activities has proved to be a significant burden on the battalion's TO&E personnel and equipment. Limited relief has been obtained by hiring of local nationals, however, military personnel supervisory effort is diverted from primary assignments to accomplish many of these functions.

3. Training:

a. The battalion is conducting only Commander's Call, Character Guidance, and Materiel Readiness Training on a scheduled basis. All other training is scheduled as inclement weather training, most of which can be accomplished during the rainy season. This approach permits maximum effort on the projects during good weather. The battalion presently works a 58½ hour week.

b. A repair parts supply and prescribed load list course was conducted during the period. Periodic formal classroom training is mandatory to insure proper interpretation and application of appropriate regulations by both immediate supervisors and clerks.

4. Intelligence: A battalion reconnaissance team performed an Engineer reconnaissance of 2021 kilometers of road and 463 bridges in northeast Thailand during the reported period.

5. Operations:

a. The Annual IG Inspection was conducted during the period. The overall battalion rating was Excellent.

b. Major operations are as described in Section I.

6. Logistics and Supply:


a. Non-availability of repair parts continues to be a problem in accomplishing an effective maintenance program. The ASL now has 1699 line items of which 879 are at zero balance. During this period a total of 8592 requisitions were submitted with 6072 requisitions remaining unfilled. Effectiveness of PLL's has also decreased from an 8% zero balance at beginning of this reporting period to 18% as of this date. Order and shipping time allowances defined in AR 725-50 prove to be unrealistic. Of 238 major items of engineer equipment assigned this unit, an average of 48 items were deadlined for a rate of 20%. Of 170 major items of ordnance equipment assigned, an average of 22 were deadlined for a rate of 13%. With adequate repair parts support, these deadline rates would improve favorably.

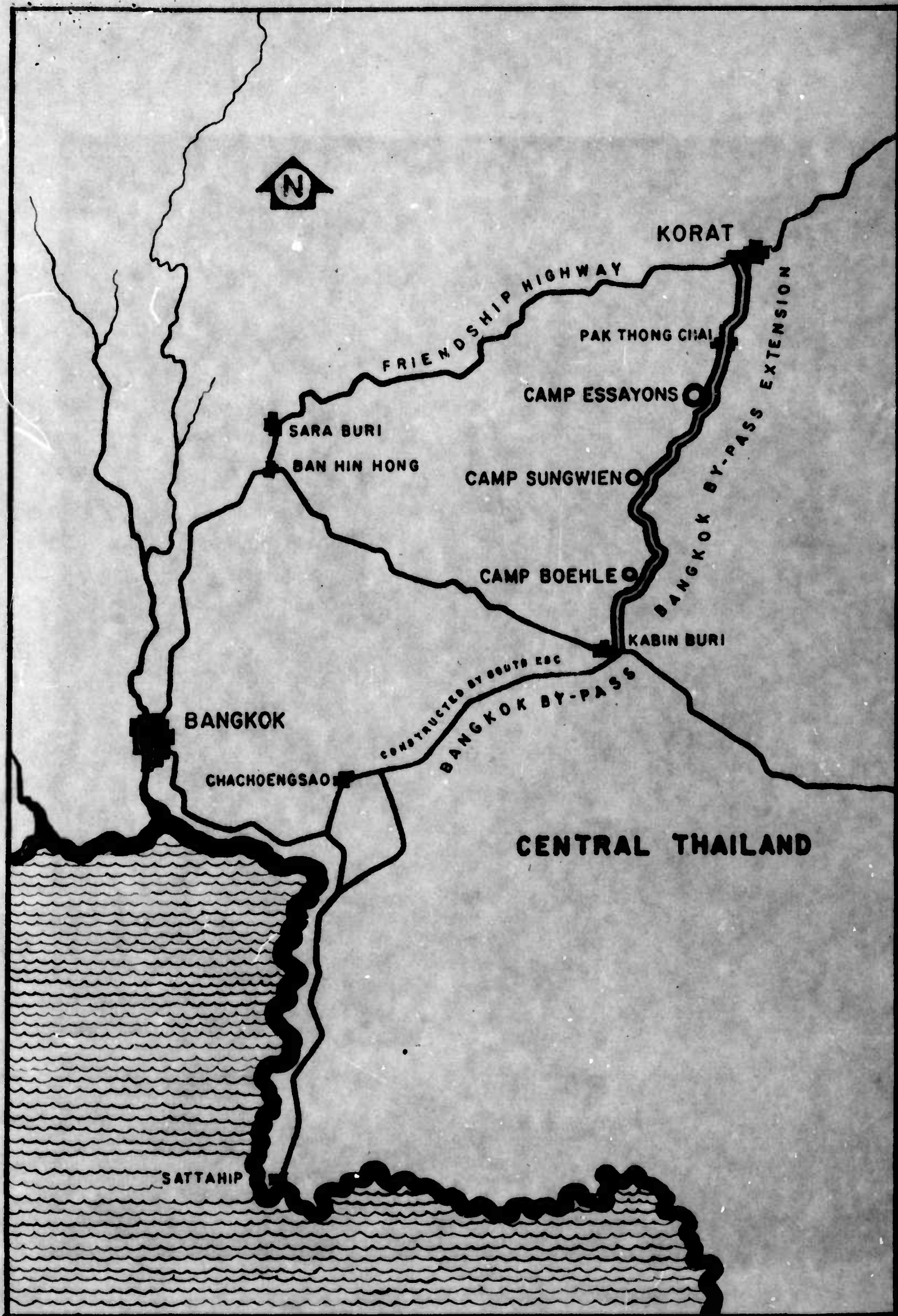
b. Local purchase of repair parts from distributors in Bangkok for engineer equipment (approximately \$1500 each week) has enabled this unit to continue to operate effectively. For example, during the period, 21 out of 43 field maintenance job orders on Caterpillar D8 tractors were completed in the battalion as a result of local purchase of repair parts.

c. The battalion was issued 47 new multifuel 5 ton dump trucks, M51A2, prior to deployment in July 1965. Eight (8) EIRs have been submitted during the report period on engine assemblies, fuel injector pumps, and power steering pumps. Twelve of these which are currently deadlined, the longest for a period in excess of 100 days, for lack of parts in one or more of these areas. Inclosures 9 thru 14 illustrate defects found in this engine.

7. Medical: Although the battalion is engaged on a military road project which extends thru a highly endemic malaria area, there have been no cases of malaria among US personnel. However, there are signs of an increase of malaria in local nationals in the area. Battalion personnel continue the experiment with the new antimalaria drug DDS, as well as taking the weekly Chloroquine-Primaquine tablet. Nightly fogging of the area continues and the use of mosquito netting and repellent receives command emphasis. Night construction operations are not conducted in the most dangerous malaria areas.

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GEORGE A. BICHER
Lt Col, CE
Commanding

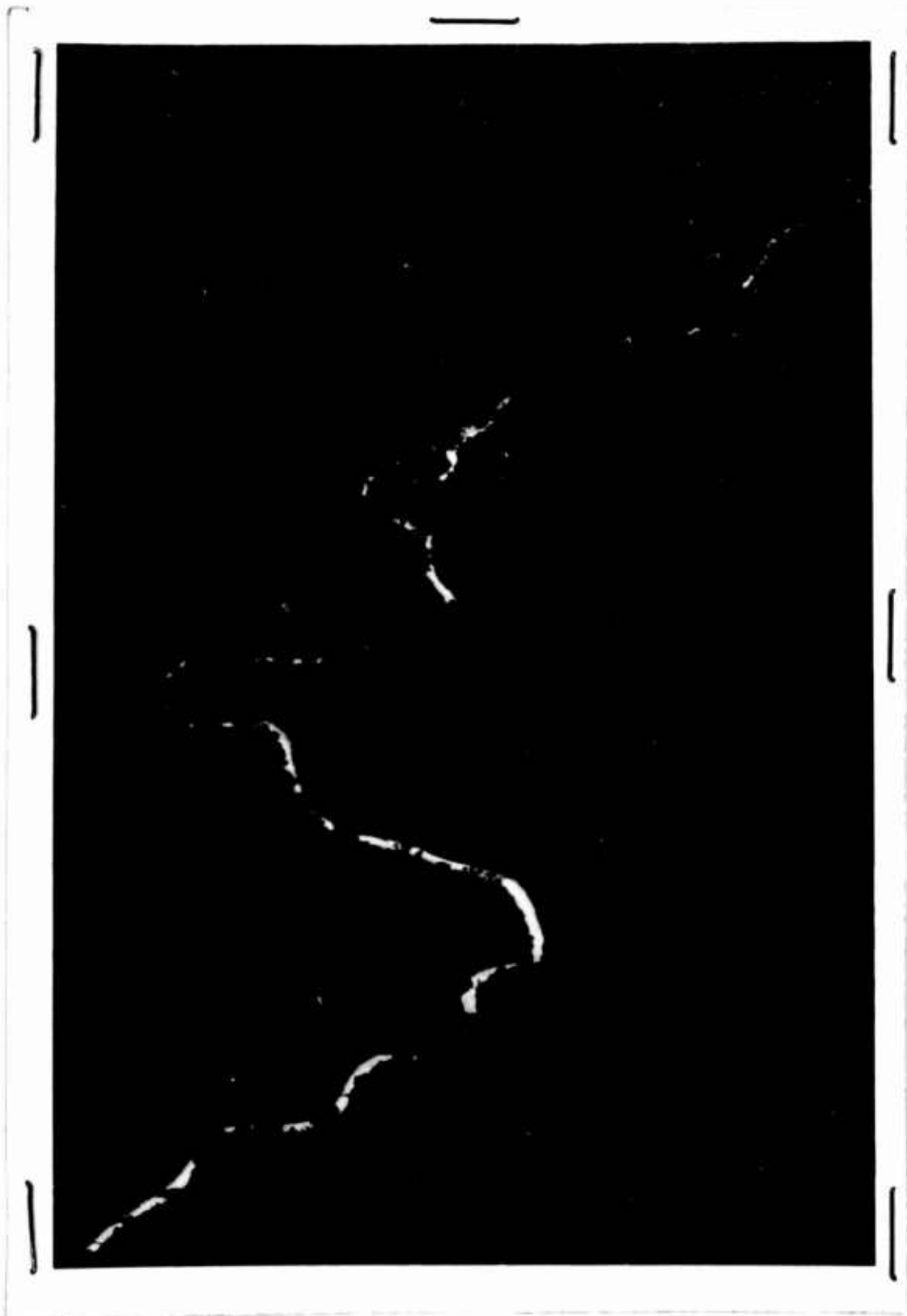


Sheet 1



Kilometer 60, Route 23 south of Korat, Thailand. Fall 1965.

incl 2



Route 23, approximately 90 kilometers south of Korat, Thailand. Initial clearing by Co C, 538th Engr Bn makes the mountain road visible from the air. January 1966.

Arch 3



Route 23, approximately 82 kilometers south of Korat, Thailand. Roadway completed thru subgrade. March 1966.

Sheet 4



Route 23, approximately 60 kilometers south of Korat, Thailand. Road completed thru subgrade. Base course of decomposed granite has been applied to the road. April 1966.



Five of nine tanks constructed at the Korat POL Tank Farm, Korat, Thailand.
March 1966.

Sheet 6

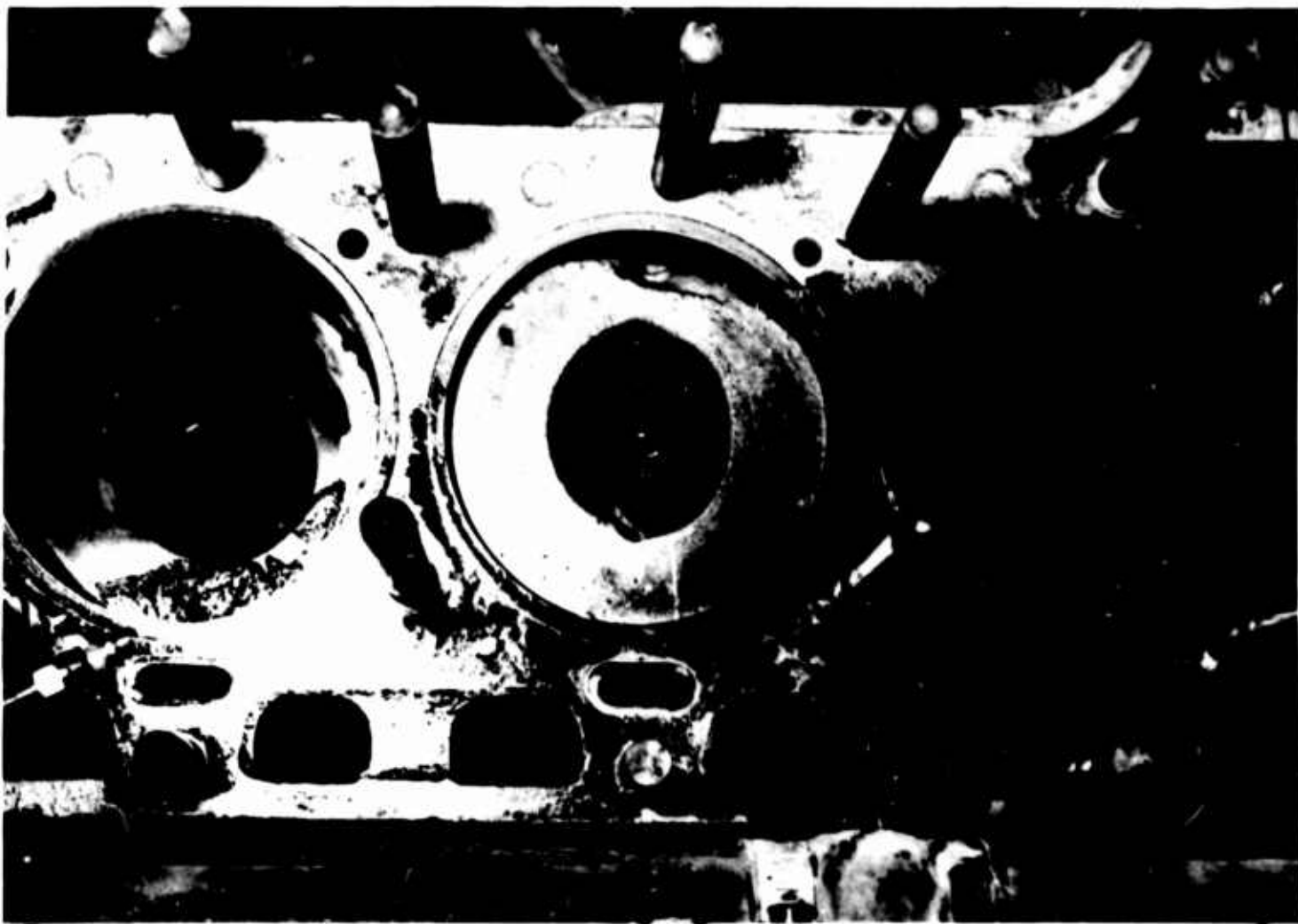


10,000 barrell tank with earth berms. Korat POL Tank Farm, Korat, Thailand.
March 1966.

Sheet 7



Filter separator, manifold, and truck fill stand at the Korat POL Tank Farm, Korat, Thailand. April 1966.



PISTON IN BLOCK

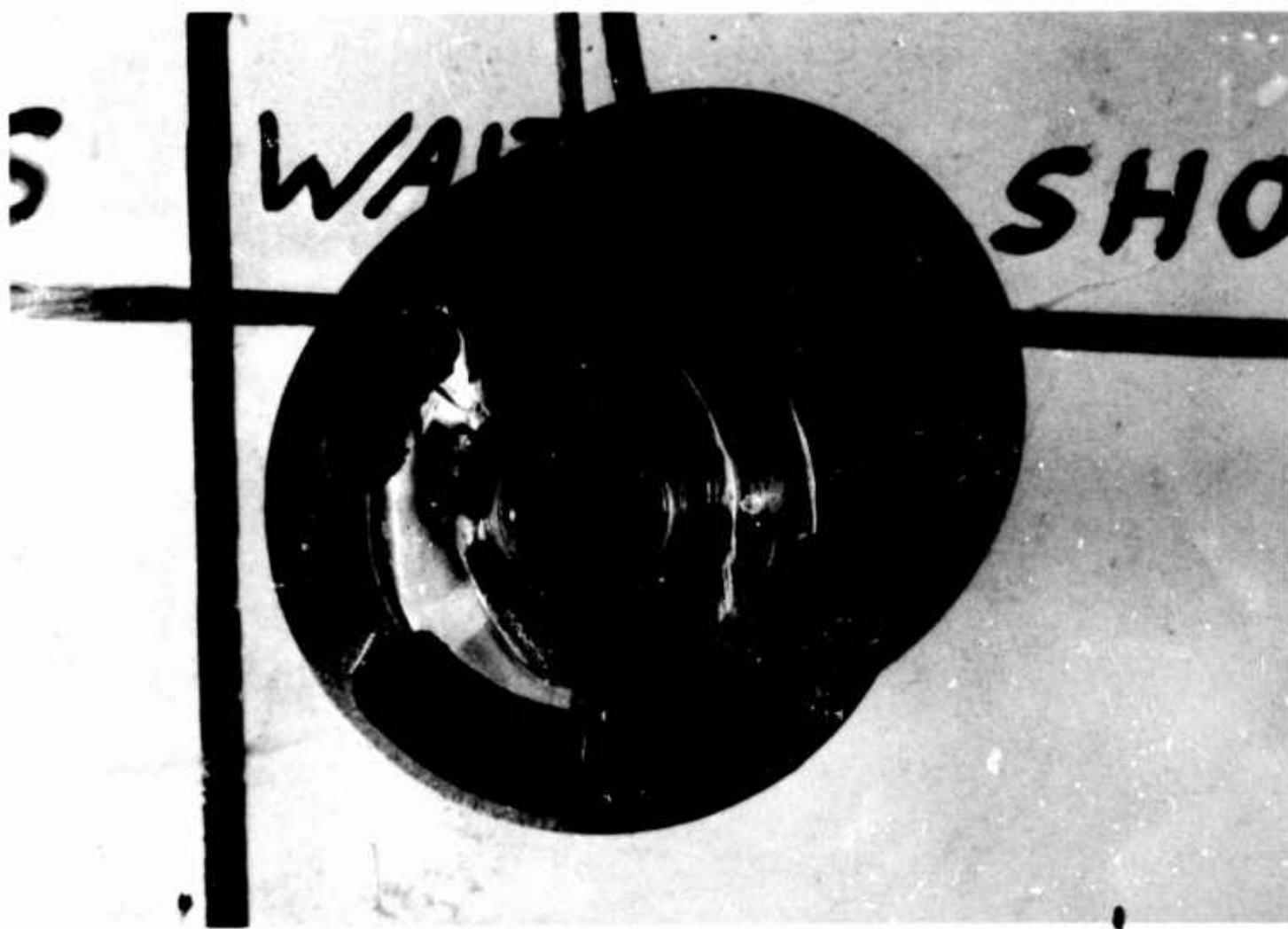
This view shows damage to top of pistons caused by improper injector nozzle timing.



POWER STEERING PUMP

View of housing end of pump showing grooves which made vehicle hard to steer.

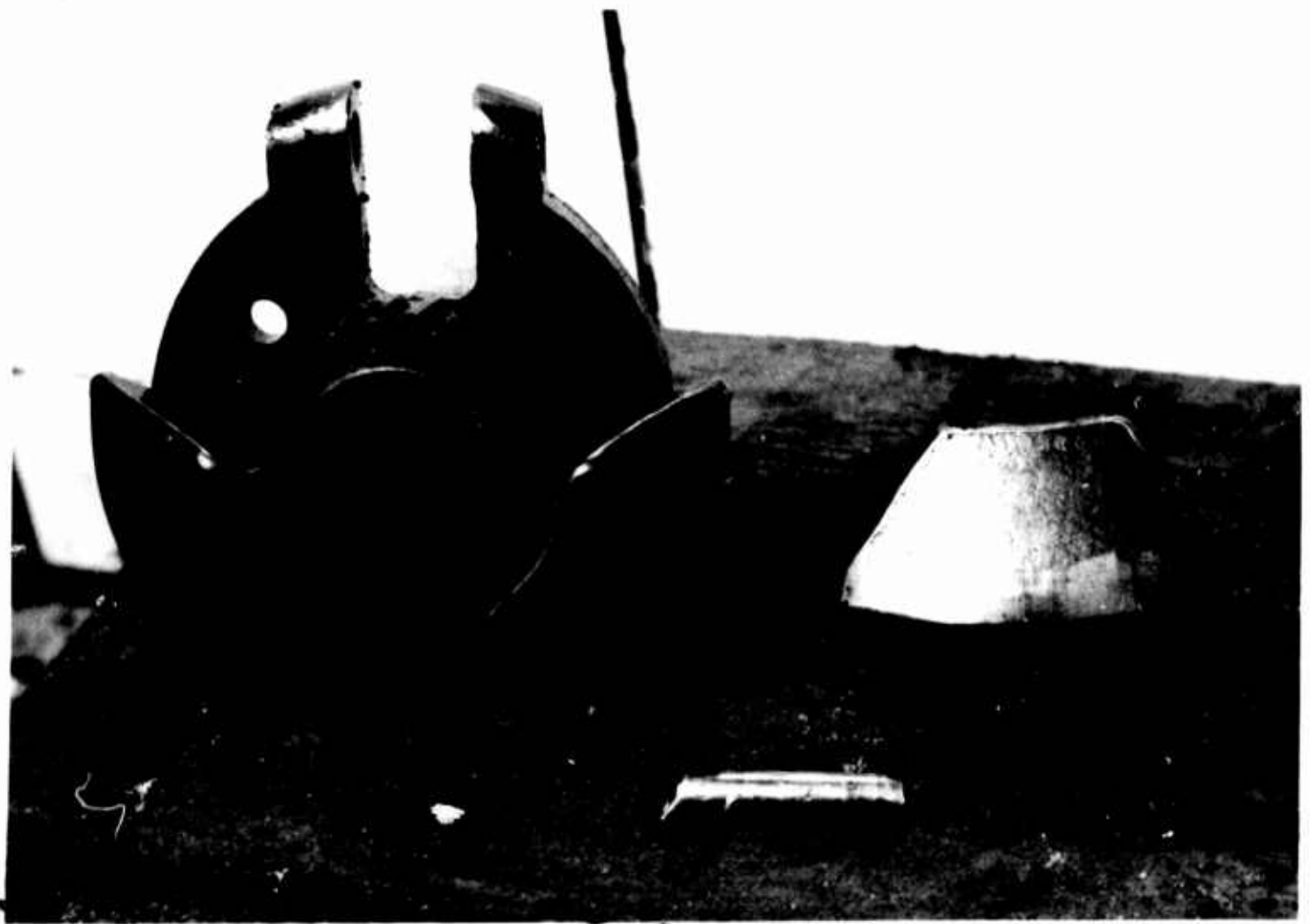
Sheet 10



POWER STEERING PUMP

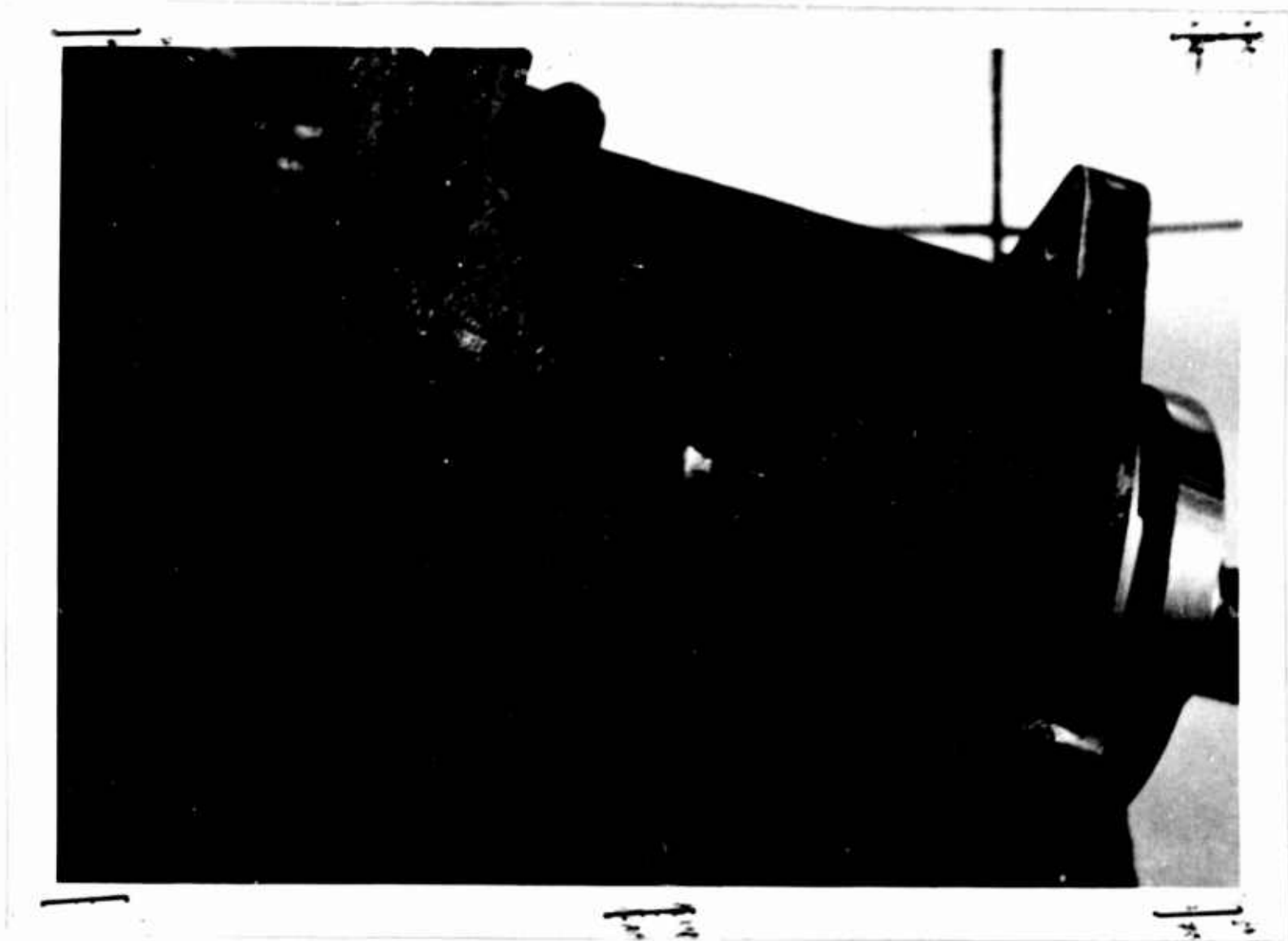
View of pressure plate showing grooves which made vehicle hard to steer.

Sheet 11



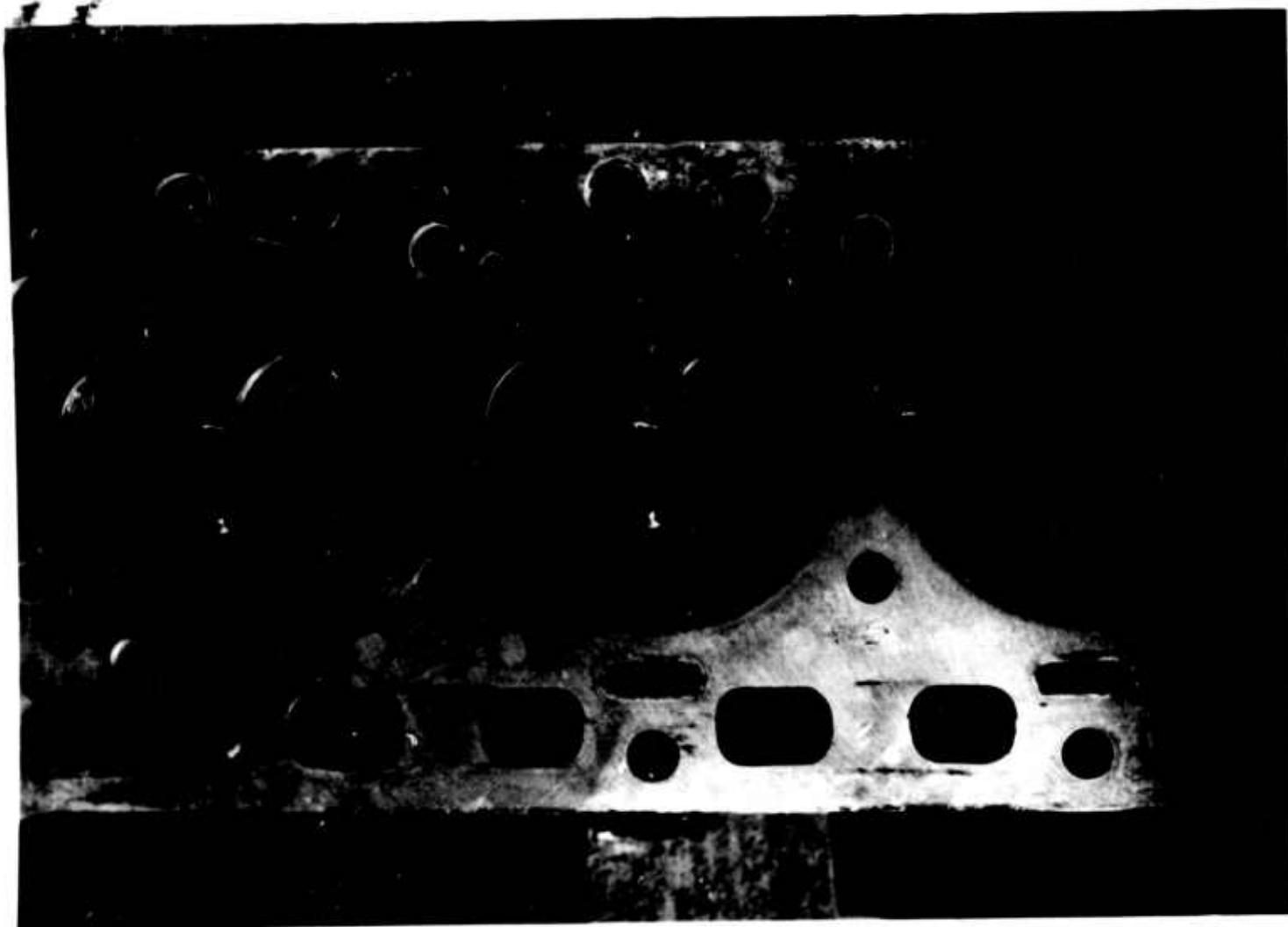
FRICTION DRIVES SPIDER

The pin holding the weight assembly to the friction drive spider worked its way out of the bushing and weight assembly causing one weight to come out thru the advance housing assembly.



ADVANCE HOUSING ASSEMBLY

Damage to housing after pin and weight of the friction drive spider became loose.



HEAD ASSEMBLY

Photo shows the cracks between the exhaust and intake valve assembly of engine. No reply to E.I.R. has been received.

Sheet 14

GPOP-MH (30 April 66)

4th Ind

SUBJECT: Operational Report of Lessons Learned for the Period Ending
30 April 1966 (Reports Control Symbol GSGPO-28 (R1))

HQ, U.S. ARMY, PACIFIC, APO San Francisco 96558 16 AUG 1966

TO: Assistant Chief of Staff for Force Development, Department of the Army,
Washington, D.C. 20310

1. The Operational Report on Lessons Learned of the 538th Engineer Battalion for the period 1 January - 30 April 1966 is forwarded herewith. Though brief, the report is comprehensive and informative.

2. Remarks in the basic ORLL and preceding indorsements concerning personnel shortages and MTOE's have partially been overtaken by events. As of 30 June 1966, the assigned EM strength of the 538th Engineer Battalion was 87 percent of authorized (742 actual, 851 authorized). However, the 538th Engineer Battalion and other Engineer units in Thailand are still short construction, power production, and heavy equipment operator personnel. A detailed list of the MOS shortages in Thailand is provided in the 4th Quarter, FY 66, USARPAC Command Summary Evaluation of Unit Readiness. The Em grade distribution in Thailand is unfavorable, reflecting significant shortages in all middle grades:

	<u>Auth</u>	<u>Asgd</u>	<u>%</u>
E4	1777	1194	67%
E5	1085	757	70%
E6	331	279	84%
E7	169	120	71%

2. Valid requisitions exist for current personnel shortages in the 9th Logistical Command and in the 538th Engineer Battalion. In regard to paragraph 2b, Section II of the basic report, and paragraph 2a(2)(b) of the USARYIS 3d Indorsement, MTOE's for the 538th were submitted to DA as follows:

- a. Hq & Hq Co - 26 March 1966
- b. A Co - 13 July 1966
- c. B, C, and D Co - 29 June 1966

3. Reference paragraph 2c, Section II, basic ORLL; paragraph 2c, 44th Engineer Group 1st Indorsement; and paragraph 2, 9th Logistical Command 2d Indorsement. Authorization for 14 water distributors (an increase of 8) for the 538th Engineer Battalion was granted by DA-758028, DTG 011453Z April 1966. This is another item that has been overtaken by events and previous actions.

GPOP-MH (30 April 66)

4th Ind

16 AUG 1966

SUBJECT: Operational Report of Lessons Learned for the Period Ending
30 April 1966 (Reports Control Symbol GSGPO-28 (R1))

4. Reference paragraph 6c, Section II, basic ORLL, and paragraph 2e, 44th Engineer Group 1st Indorsement. Equipment improvement reports (EIR's) submitted by the 538th Engineer Battalion on the fuel injector pump, power-steering pumps, and engine assemblies are presently being acted upon by the U.S. Army Tank and Automotive Center. In addition, Lt. D. L. Wiggins, previously assigned to USAMC and now assigned to the 2d Logistical Command, and an expert on the multi-fuel truck, recently initiated technical training in this theater on the introduction of the multi-fuel truck. CINCUSARPAC GPLO-SM 15940, DTG 210344Z July 1966, recommended to CG USARYIS that Lt. Wiggins be sent to Thailand to investigate the 5-ton dump truck maintenance problem and to report required corrective action. The same message also requested that CG USARYIS initiate appropriate follow-up action to improve ASL/PLL status of the 538th Engineer Battalion.

5. Reference paragraph 2a(3), USARYIS 3d Indorsement. During the fall of 1965, increases in repair parts requirements for engineer units in Thailand were anticipated. USARYIS was requested to send a representative to the USARPAC ICP to make recommendations for stockage level changes. This was accomplished and new levels were established. Requisitions were placed on CONUS to obtain the necessary depot stockage. Since 1 February 1966, USARYIS requisitions for repair parts have been by-passing the USARPAC ICP and automatic follow-up by 2d Logistical Command is being accomplished.

FOR THE COMMANDER IN CHIEF:



D. A. HARRISON
Capt, AGC
Asst AG

1 Incl
nc

Copies Furn:
CG USARYIS, Attn: RIC-MH
CO, 9th Log Comd

RIC-MH (30 Apr 66)

3d Ind

SUBJECT: Operational Report of Lessons Learned for the Period Ending
30 April 1966 (Reports Control Symbol GSGPO-28 (R1))

HQ, United States Army, Ryukyu Islands, APO San Francisco 96331 29 JUN 1966

TO: Commander in Chief, United States Army, Pacific, Attn: GPOP-MH
APO 96558

1. Forwarded herewith is Operational Report on Lessons Learned submitted by the 538th Engineer Battalion (Construction) for the quarter ending 30 April 1966.

2. This report and the comments contained in 1st and 2d Indorsements to the letter of transmittal have been reviewed and the following comments are submitted:

a. Reference Section II:

(1) Para 1a: Requisitions submitted by this headquarters are sufficient to cover all present shortages and projected losses. No problem is anticipated provided requisition items are filled and arrive in the requested month.

(2) Para 2:

(a) This unit arrived from CONUS with significant shortages of mission essential equipment which contributed to its reduced mission capability. Recommend DA emphasis on AR 220-10 requirements for deployment of units from CONUS with complete TOE authorized equipment.

(b) MTOE actions in process will result in manpower increases when consummated. Also, additional manpower as well as more effective utilization of available resources are expected through the establishment of TD area command organizations and the exemption of Thai local nationals from DA employment ceilings. TDs for area command organizational structures within limited available staffing resources were approved on 11 June 1966. Complete TDA action is in progress.

(3) Para 6:

(a) Current USARPAC ICP procedures restrict the command from taking significant actions for improving supply of repair parts. The USARPAC ICP is responsible for the establishment or revision of requisitioning objective (R/O) for Class II and IV repair parts, to include requisitioning for replenishment of these levels. 2d Logistical Command initiates two actions (1) the establishment of back orders to fill the

RIC-MH

3d Ind

29 JUN 1966

SUBJECT: Operational Report of Lessons Learned for the Period Ending
30 April 1966 (Reports Control Symbol GSGPO-28 (R1))

requirements for validated requisitions for items not available and (2) the submission of priority requisitions for repair parts necessary to remove equipment from deadline. Follow-up actions to expedite supply of replenishment requisitions is the responsibility of the USARPAC ICP.


(b) The logistics section of Unit Readiness Reports submitted in accordance with AR 220-1 clearly portrays the effect of delayed supply of repair parts on 9th Log Command units. The Command Summary Evaluation of Unit Readiness Report (CSEUR) also submitted in accordance with cited AR, provides an evaluation of logistical deficiencies reported and actions taken to correct these deficiencies.

(c) Para 10c and 15 of AR 310-49, as implemented by USARYIS Regulations 310-31 and 310-48, provide for immediate submission of MTDA change by electrical means for authorization to procure supplemental and special type equipment required for a specific mission and location. Corrective action has been taken to apprise 9th Log Command accordingly.

(4) Para 7: Although no malaria cases have occurred in U.S. personnel, this is definitely a potential problem requiring continued command support and emphasis regarding prevention and prophylaxis.

FOR THE COMMANDER:

1 Incl
nc


B. W. MONTGOMERY
Lieutenant Colonel, AGC
Assistant Adjutant General

RILC-CO (30 Apr 66)

2nd Ind

SUBJECT: Operational Report of Lessons Learned for the Period Ending
30 April 1966 (Reports Control Symbol GSGPO-28 (R1))

HEADQUARTERS, 9TH LOGISTICAL COMMAND (B), APO U.S. Forces 96233, 4 May 1966

TO: Commanding General, U.S. Army, Ryukyu Islands, APO U.S. Forces 96331


1. Reference paragraph 1c. This headquarters will make every effort to obtain the necessary NCO replacements as soon as possible.

2. Reference paragraph 2a and 2c. This headquarters will monitor these two actions to ensure that subject requisitions are processed and filled as expeditiously as possible.

3. Reference paragraph 2d. Areas of interest mentioned in this paragraph are being considered for manpower requirements by this headquarters, at the present time. A representative will visit the units concerned in the near future to assist them in the proper procedures to obtain overhead type personnel.

4. Reference paragraph 6a. Every effort is being made by this command to obtain repair parts. Many items, however, are not readily available in the supply system. USAD, Thailand, has recently increased the Requisitioning Objectives; an action which should alleviate the problem to some extent.

1 Incl
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W. H. MCKENZIE III
Colonel, CE
Commanding

RILCA-OP (30 Apr 66)

1st Ind

SUBJECT: Operational Report of Lessons Learned for Quarterly Period
Ending 30 April 1966

HEADQUARTERS, 44TH ENGINEER GROUP (CONSTRUCTION), APO US Forces 96233

TO: Commanding Officer, 9th Logistical Command (B), APO US Forces 96233
ATTN: RILC-DO

1. The attached Operational Report of Lessons Learned, for the Quarterly Period Ending 30 April 1966, for the 538th Engineer Battalion (Const) is forwarded with comments and recommendations as indicated.

2. Reference Section II:

a. Par 1c: I concur that a serious problem will exist within supervisory positions with the departure of the majority of NCOs over a 2 month period. Not only must replacements be provided but arrival must be timed to allow adequate overlap to enable a smooth transition of responsibility.

b. Par 2a: The shortage of 33% of the battalions authorized tractors and 50% of its scrapers necessarily reduces the earth moving capability proportionately. This is critical on the high priority routes of communications type projects we are employed on here in Thailand. Expeditious filling of the requisitions is urged.

c. 2c: Approval to requisition 8 ea additional water distributors has been received from Department of the Army. Recommend expeditious processing and action to make this equipment available at the earliest date. Completion of the earthwork phase of the Korat-Kabin Buri Road depends greatly on the availability of water distributors for moisture control in compaction. The present aged and improvised equipment is unreliable.

d. Par 2d: This problem was commented upon in the report prepared by this headquarters. The method of obtaining overhead type personnel to fill these garrison positions has been obscured in the confusion created over the MTOE concept.

RILCA-OP

SUBJECT: Operationsl Report of Lessons Learned for Quarterly Period
Ending 30 April 1966

e. Par 6: Problems enumerated here were commented on in the report prepared by this headquarters. Constant follow up action will be taken to insure regulations, policies and procedures governing PLLs and ASLs are followed. Timely follow up will be taken on all parts requisitions. Until the system becomes responsive, local purchase will continue to be a major source of parts for common engineer items. The problem of parts, to include tires, for the M51-A2 dump trucks is real and continued shortages could lead to immobilization of the entire fleet; its solution should be viewed as a matter of extreme urgency.



FRANKLIN B. MOON
Lt Col, CE
Commanding

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